

## **Barrier Grouping 5**

**New renewables are not included  
in utility resource plans.**

**INTRODUCTION:**

The PUC adopted a Framework for Integrated Resource Planning ("IRP Framework") in 1992.<sup>1</sup> Hawaii's electric utilities submitted their first integrated resource plans ("IRP Plans") in 1993.<sup>2</sup>

The preferred 20-year IRP Plans submitted by the electric utilities did not include new renewable resources.<sup>3</sup> The IRP Plans submitted by the utilities do include DSM measures, such as residential solar water heating measures, that utilize solar energy to reduce electric utility load demand and produce energy savings. The 5-year Program Implementation schedules (or "Action Plans") submitted by the utilities do include activities and budgets to study the feasibility and benefits of various renewable resources and energy storage facilities.<sup>4</sup>

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<sup>1</sup> See Re Integrated Resource Planning, Docket No. 6617, Decision and Order No. 11523 (March 12, 1992) ("D&O 11523"), as amended by Decision and Order No. 11630 (May 22, 1992) ("D&O 11630").

IRP requires the consideration of both supply-side and demand-side resources. See IRP Framework ¶¶II.B.3, IV.D.1, IV.H3, IV.I.1. "The goal of integrated resource planning is the identification of the resources or the mix of resources for meeting near and long term consumer energy needs in an efficient and reliable manner at the lowest reasonable cost." IRP Framework, ¶II.4.

<sup>2</sup> The plans were also modified by the utilities during the course of PUC proceedings to review the plans in 1994.

<sup>3</sup> See Re Integrated Resource Planning, Docket No. 7257, Decision and Order No. 13839 (March 31, 1995) ("HECO") ("D&O 13389"); Re Integrated Resource Planning, Docket No. 7260, Decision and Order No. 14026 (July 28, 1995) (KE) ("D&O 14026"). Each of the electric utilities currently purchases power produced from renewable resources.

<sup>4</sup> See Re Integrated Resource Planning, Docket No. 7257, Decision and Order No. 13839 (March 31, 1995) ("HECO") ("D&O 13389"); Re Integrated Resource Planning, Docket No. 7260, Decision and Order No. 14026 (July 28, 1995) (KE) ("D&O 14026").

**There is no consensus that the non-inclusion of new renewable resources in the utilities' IRP Plans is a barrier to the development of renewables.**

**Barrier 5.a****Long-term reliability of the renewable energy technology.****DEFINITION:**

When renewable energy technology is utilized the question that arises is what is the life cycle of the unit and the reliability of the technology.

**DISCUSSION:**

There was no consensus that this is a barrier.

Proponents maintain that renewable energy resources, such as wind energy and solar energy, are still in the development stage. For instance, wind energy has been in large scale, commercial operation for a relatively short period of time (i.e., approximately twelve years). "Advanced generation" wind energy systems, which appear to be more cost-effective and compatible with electric utility systems than prior generations of wind machines, are just being commercially tested at a number of mainland sites. These advanced wind turbines will have to be operated a number of years to prove their long-term reliability. Recent accounts of blade failures and other startup problems of these advanced wind turbines reinforces the need for any technology undergoing a step improvement in design to operate for an extended period of time in order to prove its reliability.

Opponents maintain that owing to RD&D and early commercialization attempts wind technology has progressed rapidly and costs have fallen dramatically over the last 10-15 years. Although there have been problems with the commercialization of wind in Hawaii, the wind industry has learned from the mistakes made in wind turbine design and siting, not only in Hawaii, but on the mainland as well.

**STRATEGIES:**

Potential strategies include, but are not limited to:

Strategy 5.a.1    Monitor on-going RE developments.

**DISCUSSION:**

Generally, on-going RE developments are monitored through membership and active participation in various renewable energy associations and working groups; communication with other utilities, national laboratories, vendors, universities, etc.; attendance at conferences and workshops; visitations to operating commercial and demonstration projects; and subscriptions to RE journals and magazines.

**VEHICLE:** Monitor on-going renewable energy demonstration projects and technology developments through continued application of the above approaches.

**AGENCY:** Utilities, Developers, Government agencies, Public Interest groups, Interested members of the General Public.

**POSITION OF THE PARTIES:**

**PROPONENTS:** heco, ke, d, r, ki, m, h, n, ca, z

**OPPONENTS:**

**NO POSITION:** p, i, krl, ers

**Strategy 5.a.2** Actively participate in RE demonstration projects applicable to Hawaii.

**DISCUSSION:**

This is generally accomplished by entities exploring and developing opportunities to take part in joint research, development, demonstration activities, etc.

**VEHICLE:** To the extent that funds are available the Utilities will use a portion of their respective RD&D budgets to attempt to develop and implement a limited number of pilot RD&D demonstration projects targeted to renewable technologies applicable to their service areas. To be effective utility dollars should be leveraged with public and private dollars. (See also Barrier Grouping 1, Strategy 1.e.2, Green pricing utility tariff.)

**AGENCY:** Utilities, PUC, State and Federal governments, Developers, and Third Party Investors

**POSITION OF THE PARTIES:**

**PROPONENTS:** heco, ke, d, r, ki, m, h, n, ca, z

**OPPONENTS:**

**NO POSITION:** p, i, krl, ers

**Barrier 5.b****Lack of incentives to utilities to purchase renewable energy.****DEFINITION:**

The utilities have no incentive to purchase renewable energy from non-utility generators.

**DISCUSSION:**

No consensus was reached on this Barrier.

Proponents maintain that stockholders of utilities receive dividends primarily through the return on investment allowed by the PUC. Absent a directive from the PUC that the utility utilize renewable resources, a utility will always choose to build fossil fuel plants based on a lower economic risk profile. The return generally available to an electric utility is not commensurate with the risk of investing in renewable projects. To overcome the higher economic risk associated with renewable resources would require a monetary incentive to be paid to a utility. Providing the utility with a monetary incentive to buy or invest in renewable energy projects would act as a further disincentive for the development of renewable energy because that would only result in a higher costs. This incentive would be in addition to the already high initial cost to develop renewable projects. The higher cost would narrow the group of consumers willing to pay for electricity produced by renewable energy.

Opponents maintain that the lack of an incentive is not an actual barrier to the development of renewable resources, although it may be a perceived barrier. However, there are disincentives that discourage utilities from purchasing power, which should be eliminated. In particular, utilities should not be required to enter into PPAs on terms and conditions that shift risks from the NUGs to the utilities, and certainly should not be required to do so without being compensated for any risks they are required to assume.

**Strategy 5.b.1    Develop a standard offer contract for renewable energy sales to utilities.**

**DISCUSSION:**

No consensus was reached on this strategy. A standard offer contract is a contract that has standard contract provisions and a standard method of calculating avoided cost. In most cases, the standard offer contract has been preapproved by the PUC, thus, getting approval of the contract should be proforma.

Proponents maintain that (1) California has become a world leader in the development of renewable resource and efficient cogeneration projects to meet its electricity needs, due largely to bidding for independent power projects and the development and use of standard offer contracts, (2) without greater price certainty and experience with the contract provisions, these projects were extremely difficult to finance due to lender concern about uncertain revenue flows. As a result, the CPUC directed parties to develop a contract option in the spring of 1983 that provided fixed payments for both energy and capacity over a period time to allow projects to obtain financing, and (3) the CPUC opted for a portfolio of contracts in order to provide options to match the diverse needs of the array of generation technologies and independent power applications available.



Opponents maintain that (1) standard offers and/or standard form contracts may or may not encourage the implementation of renewable resources, depending on the terms and conditions of the standard offers and/or contracts,<sup>5</sup> (2) Hawaii utilities generally have made "standard offers" for as-available energy projects, based on their filed avoided energy costs and form contracts<sup>6</sup>, but RE developers have often sought prices, terms and conditions that differ from the "standard offers", resulting in extended negotiations, and (3) the unique production and power supply characteristics of the different renewable technologies require flexibility in contract provisions and terms, which makes it difficult to develop form contracts for firm capacity PPAs.

**VEHICLE:** Investigation or initiation of a PUC Docket to consider the institution of a standard offer contract.

**AGENCY:** PUC

**POSITION OF THE PARTIES:**

**PROPOSERS:** ke, d, r, p, ki, m, h, w, n, krl, i, ers, z

**OPPOSERS:** heco

**NO POSITION:** ca

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<sup>5</sup> California is the best example of a state that implemented standard offers and/or contracts. Standard offers and/or contracts spurred the development of renewables in California, primarily due to the high prices they included. These offers included fixed, escalating prices based on projections of avoided costs. The assumption was that oil prices, and avoided costs, would continue to escalate at a rapid rate through the 1980s and 1990s. As a result, California utilities are now paying prices for purchased power that are as much as four times greater than their current avoided costs.

See, e.g., HELCO Application filed September 18, 1995 in Docket No. 95-0319 for approval of a Schedule Q Contract. Schedule Q applies to QF facilities rated at 100 kW or less.

<sup>6</sup> See, e.g., HELCO Application filed September 18, 1995 in Docket No. 95-0319 for approval of a schedule Q Contract. Schedule Q applies to QF facilities rated at 100 kW or less.

**Strategy 5.b.2** If any avoided capacity costs can be reasonably demonstrated for an as-available resource, the amount of these avoided costs (or some proxy) should be included in determining the value and pricing of the resource.

**DISCUSSION:**

See discussion under Strategy 1.c.2

**POSITION OF THE PARTIES:**

**PROPOSERS:** d, r, p, ki, m, h, w, n, krl, i, ers, z, ke

**OPPOSERS:** heco

**NO POSITION:** ca

**Barrier 5.c**

**Lack of incentive to utility sufficient to overcome risk of producing RE.**

**DEFINITION:**

This is a barrier to utility investment to build its own renewable energy projects. The potential return on an investment must be commensurate with the investment risk. The return generally available to an electric utility is not commensurate with the risk of investing in renewable projects.

**BACKGROUND:**

This barrier did not have consensus.

Proponents maintain that utilities should be provided incentives, such as those potentially available for DSM programs, under appropriate circumstances in order to overcome the higher risk associated with investing in RE projects.

Opponents maintain that incentives provided to utilities would result in higher costs for the development of renewable energy, which would act as a disincentive to the development of renewable energy.

## **STRATEGIES**

Possible strategies include, but are not limited to:

**Strategy 5.c.1** Consider providing incentives to utility shareholders for investing in RE facilities or in RE RD&D projects.

### **DISCUSSION:**

This strategy did not have consensus. The nature of any incentive mechanism may vary depending on resource technology, ownership arrangements, and other project specific characteristics.

Proponents maintain that utilities should be provided incentives, such as those potentially available for DSM programs, under appropriate circumstances in order to overcome the higher risk associated with investing in RE projects.

Opponents maintain that incentives provided to utilities would result in higher costs for the development of renewable energy, which would act as a disincentive to the development of renewable energy.

**VEHICLE:** The HECO Utilities to work with the Consumer Advocate and other interested parties, as part of the Utilities IRP process, to develop a specific incentive proposal.

**AGENCY:** HECO Utilities, Consumer Advocate, and other interested parties.

### **POSITION OF THE PARTIES:**

**PROPOSERS:** d, r, ki, m, h, n, z

**OPPONENTS:** w

**NO POSITION:** heco, p, i, krl, ke, ca, ers

**Strategy 5.c.2** Consider utility investment in joint ventures to develop renewable resources.

**DISCUSSION:**

There is no prohibition against Hawaii utilities (or their nonregulated affiliates) participating in joint ventures to develop renewable projects. However, the PUC still would have jurisdiction over the arrangement between the utility and the project entity for the purchase of power (which would generally be a PPA).

**VEHICLE:** The PUC (and the Consumer Advocate) could provide general guidance (absent the details of a specific renewable project proposal) on whether it would view such joint ventures positively or negatively.

**AGENCY:** PUC and Consumer Advocate

**POSITION OF THE PARTIES:**

**PROPOSERS:** heco, ke, d, r, p, ki, m, h, w, n, krl, i, ers, z

**OPPOSERS:**

**NO POSITION:** ca

**Barrier 5.d**

**Lack of equal transmission access to independent power producers and wholesale and retail wheeling.**

**DEFINITION:**

Only the utility is able to sell directly to the consumers.

**DISCUSSION:**

This barrier did not have consensus. See barrier grouping 7.

**Barrier 5.e**

**Inadequate evaluation and treatment of renewable energy resources and independent power producers in the Integrated Resource Planning (IRP) process.**

**DEFINITION:**

The preferred Integrated Resource Plans ("IRP Plans") submitted by the electric utilities in their initial IRP cycles did not include new renewable supply-side resources, and did not differentiate between utility owned and non-utility owned generation. See Appendix D.

**DISCUSSION:**

The IRP Framework requires that the utility consider all feasible supply-side options appropriate to Hawaii and available within the IRP horizon to meet the IRP objectives, which includes RE resources. IRP Framework ¶¶1 ("Supply-Side Programs"), IV.D.1.

The supply-side resources considered by utilities in their IRP processes include resources that are or may be supplied by persons other than the utilities (e.g., resources that may be supplied by non-utility generators). IRP Framework, ¶IV.D.2.

Proponents of this barrier maintain that the evaluation and treatment of RE resources and independent power producers ("IPPs") in the utilities' IRP processes was inadequate in light of the clear State policy supporting development and utilization of renewable energy, and that the exclusion of otherwise preferable RE resources that the utility would not build itself can result in a reduction in the avoided cost price (based on the preferred IRP Plan) available to such RE resources.

Opponents of this barrier maintain that their IRP Plans address the objectives of the State Plan through energy efficiency DSM Programs and supply-side action activities, that supply-side resources were generally characterized and considered without regard to ownership in the utilities' IRP processes, that their preferred IRP Plans are consistent with the potential ultimate implementation of alternate plans that include RE resources, and that IPPs are free to submit proposals to implement, replace or defer the supply-side resources included in the utilities IRP Plans, as the PUC found in the HECO IRP docket.

There is no consensus that the extent of evaluation and treatment of RE resources and IPPs in the IRP process is a barrier to the development of RE resources. There is also no consensus whether RE resources and IPPs are sufficiently taken into consideration in the IRP process.

## **STRATEGIES:**

Possible strategies include but are not limited to:

**Strategy 5.e.1** Consider quotas, set-asides or targets which mandate the purchase of a specified amount of renewable energy within a time certain.

### **DISCUSSION:**

There is no agreement that quotas, set-asides or targets should be required. The topics of quotas, set-asides and targets is addressed by several parties in Appendix C.

**VEHICLE:** Establishment of quotas, set-asides or targets by legislation, PUC rule, or in the IRP process.

**AGENCY:** Legislature or PUC.

## **POSITION OF THE PARTIES:**

**PROPOSERS:** d, p, ki, n, krl, i, ers, r, ca, z

**OPPONENTS:** heco, ke

**NO POSITION:** m, w, h



**Strategy 5.e.2** Consider preferential consideration of renewables within the resource planning context.

**DISCUSSION:**

The IRP Framework requires mandatory consideration of renewable resources in the IRP process, based on the IRP goals and objectives. There is consensus that the utilities can develop a "green" IRP plan as one of the alternative plans evaluated in their IRP processes. The HECO utilities also have stated that they will consider, with IRP Advisory Group input, formation of a Renewables Subgroup (or Focus Group)<sup>7</sup> However, there is no consensus that a preferential consideration requirement (such as those discussed in Appendix C), which would apply to the selection of the Preferred IRP Plan, should be established.

**VEHICLE:** Establishment of preference by legislation, PUC rule, or in the IRP process.

**AGENCY:** Legislature or PUC

**POSITION OF THE PARTIES:**

**PROPOSERS:** d, r, p, ki, n, krl, i, ers, z

**OPPOSERS:** heco, ke

**NO POSITION:** h, w, m, ca

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<sup>7</sup>

The Subgroup could include representatives from the utilities, developers, regulators, environmentalists, State and County planners, customers and technology experts.

**Strategy 5.e.3** Consider competitive bidding, either in the form of "Green RFPS" which limit competition to renewables for fixed amounts of power, or, open competitive bidding which credits renewable sources to acknowledge and accommodate the environmental, social and cultural benefits inherent in their use.

**DISCUSSION:**

There is no agreement that Green RFPs should be required, or that renewables should receive an externalities credit if there is an open competitive bid process. The topics of Green RFPs and externality adders are addressed in Appendices C and B, respectively. In addition, there is no consensus as to whether (1) requiring the competitive acquisition of new resources would encourage or discourage the development of RE resources<sup>8</sup> (2) competitive bidding would be an appropriate strategy, or (3) non-price factors (i.e., externalities) can legally be considered or should be considered in a competitive process.<sup>9</sup> However, the PUC has stated that it will open a generic investigation into electric utility regulation in a competitive environment, which will include the subject of competitive bidding.<sup>10</sup>

**VEHICLE:** PUC docket.

**AGENCY:** PUC

**POSITION OF THE PARTIES:**

**PROPOSERS:** d, p, ki, m, h, n, krl, i, ers, r, ca

**OPPOSERS:** heco, ke, z

**NO POSITION:** w

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<sup>8</sup> e.g., can RE resources effectively compete with fossil-fueled resources in a competitive market?

<sup>9</sup> See Appendix B.

<sup>10</sup> Re Hawaiian Electric Co., Docket No. 7257, Decision and Order No. 13839 (March 31, 1995) at 15-16.

**Strategy 5.e.4** Consider retail wheeling in order to permit direct service provision by renewable energy developers.

**DISCUSSION:**

There is no consensus that retail wheeling should be considered. Wheeling is addressed in barrier grouping 7.

**POSITION OF THE PARTIES:**

**PROPONENTS:** d, w, p, i, krl, n, ki, h, m, r, z, ers

**OPPONENTS:** heco, ke

**NO POSITION:** ca

**Barrier 5.f**

**Evaluation and consideration of beneficial impacts of renewable energy use relative to conventional fossil fuel resources.**

**DEFINITION:**

Although there are externality costs associated with renewable resource technologies<sup>11</sup>, renewable resources generally have or are believed to have, lower externality costs than fossil-fueled resources.

The Utilities determined that it was not feasible to monetize externalities in the first IRP cycle.

**DISCUSSION:**

There are several different contexts in which the indirect costs and benefits of resource options can be considered. These indirect costs are sometimes referred to as externalities. The possible contexts in which externalities can be considered include (1) the resource selection process used by the utilities in the development of their integrated resource plans, (2) consideration and evaluation of demand-side management programs and (3) the determination of the rates paid to independent power producers ("IPPs").<sup>12</sup> This barrier addresses the first of these possible contexts for the consideration of externalities. The current determination of the avoided cost payment rates is discussed under barrier 1.c. The consideration of externalities in the determination of the rates paid to IPPs is discussed under barrier 1.e. The consideration of RE resources in the utilities' IRP processes is also discussed under barrier 5.e.

There is no consensus that the extent of evaluation and consideration of the beneficial impacts of renewable energy resources relative to fossil fuel resources in the utilities' IRP processes is a barrier to the development of renewable resources. There is also no consensus whether these externalities are sufficiently taken into consideration in the utilities' IRP processes.

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<sup>11</sup> The externality costs vary with the resource, the generation technology, and the location of the resource. See, e.g. the discussion of barrier grouping 8.

<sup>12</sup> This issue has arisen in the context of whether "avoided costs" should include avoided externality costs and whether nonfossil fuel producers should be paid an externalities adder above avoided utility costs.

There is consensus that externalities should be considered in the utilities' resource selection processes<sup>13</sup>, and that the manner in which externalities are considered can be improved. However, there is no consensus regarding the value of the externalities benefits and costs of RE resources (relative to those of fossil-fueled resources), or as to how the relative externalities should be considered.

Proponents maintain that some renewable resources have beneficial impacts compared to fossil fuel resources and that these benefits are not sufficiently considered in the utilities' IRP processes. In order to fully account for these benefits, they propose that externalities be quantified, and that mechanisms (such as set-asides, quotas, preferences, etc.) be established to ensure that renewables are included in utility resource plans.

Opponents agree that externalities should be quantified to the extent required by the PUC's IRP Framework, but maintain that utility resource planning should be governed by the IRP Framework, which requires the balancing of externality considerations and renewables benefits with other specified goals and objectives, and that the establishment of set-asides or quotas would violate the principle of least cost planning.

Externalities and externality adders, and set-asides, quotas and green RFPs, are addressed by several parties in Appendices B and C, respectively.

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The PUC's IRP Framework requires that external costs and benefits be considered in the integrated resource planning process, but does not specify the weight to be given externalities in selecting the utility's preferred integrated resource plan ("IRP Plan"). Re Integrated Resource Planning, Docket No. 7257, Decision and Order No. 13839 (March 31, 1995) at 25.

As discussed under possible barrier 4.a., FERC's avoided cost cap ruling may preclude the payment of an externalities adder to an RE producer, but it does not appear to preclude the consideration of externalities in the selection of a utility resource plan (which could include renewable resources, or which could form the basis for a higher utility avoided cost determination for purchased power resources, including renewable resources, that provide equivalent externalities benefits).

## **STRATEGIES:**

Potential strategies include, but are not limited to:

Strategy 5.f.1      Improve the methodologies to value the benefits of renewables.

### **DISCUSSION:**

Methodologies for quantitatively valuing the positive (and negative) attributes of renewable resources can be improved. Benefits and risks that can be better evaluated include, but are not limited to, distributed generation benefits, resource diversity benefits, resource supply risk, and technology risk.

As part of their Supply-Side Action plans, HECO, HELCO and MECO plan to conduct studies to (1) evaluate opportunities for dispersed generation (and remote or off-line generation facilities on the Big Island), and (2) gather and analyze additional information to permit a more thorough assessment of several of the supply-side options identified in their IRP Supply-Side Resource Reports.

An agreement between HECO, HELCO, and MECO with EPRI is in place to conduct dispersed generation studies in their service areas. EPRI's consultant, Rumla, Inc. has conducted screening activities, and is conducting detailed analyses for selected sites. HECO and MECO worked with PCHTR and NREL on an Integrated Electric Utilities Project ("IEUP") --Model Utility.

**VEHICLE:**      IRP Process

**AGENCIES:**      Utilities, Utility IRP Advisory Groups, PUC

## **POSITION OF THE PARTIES:**

**PROPOSERS:**      ke, d, p, ki, m, h, w, n, krl, i, heco, r, ers, ca, z

**OPPOSERS:**

**NO POSITION:**

**Strategy 5.f.2**

**Proceed with the quantification of externalities.**

**VEHICLE: HECO Utilities' Externalities Action Plan.**

The HECO Utilities have proposed to jointly participate in an Externalities Action Plan, whose objective is to develop a process which incorporates external costs and benefits into the planning process on a level playing field among resources. The PUC approved the HECO Utilities Externalities Action Plan, finding HECO's strategy for quantifying externalities to be reasonable.

An Externalities Advisory Group ("EAG") was formed, and a series of informational workshops on externalities have been held. The HECO Utilities are in the process of selecting, with Advisory Group input, an externalities consultant. In Phase One, the utilities will attempt to identify the externalities, provide guidelines for monetization, and determine how externalities will be used in the decision making process. In Phase Two, the utilities will attempt to develop Hawaii specific monetized values, and develop an IRP externalities workbook. In Phase Three, the utilities will utilize the external costs and benefits in the integration process. The PUC must approve the values derived for externalities.

**AGENCY: HECO Utilities, HECO Utilities EAG, PUC**

**POSITION OF THE PARTIES:**

**PROPONENTS: heco, ke, d, ki, m, h, w, ca, z**

**OPPONENTS:**

**NO POSITION: p, n, krl, i, ers**

**Strategy 5.f.3**

**Establish "Green" requests for proposals ("RFP"s).**

**DISCUSSION:**

There is no agreement that Green RFPs should be established. The topic of Green RFPs is addressed by several parties in Appendix C.

**VEHICLE:** Requirement for Green RFP.

**AGENCY:** PUC

**POSITION OF THE PARTIES:**

**PROPOSERS:** d, r, p, ki, n, krl, i, ers, z

**OPPOSERS:** heco, ke

**NO POSITION:** h, w, m



**Strategy 5.f.4**

**Establish renewable set-asides.**

**DISCUSSION:**

There is no agreement that set-asides should be established. The topic of set-asides is addressed by several parties in Appendix C.

**VEHICLE:** Establishment of set-asides for renewables in IRP.

**AGENCY:** PUC

**POSITION OF THE PARTIES:**

**PROPOSERS:** d, r, p, ki, n, krl, i, ers, z

**OPPOSERS:** heco, ke

**NO POSITION:** w, m, ca, h

**Strategy 5.f.5**

**Consideration of competitive bidding.**

**DISCUSSION:**

The PUC has stated that it will open a generic investigation into electric utility regulation in a competitive environment, which will include the subject of competitive bidding.<sup>14</sup>

**VEHICLE:** PUC docket regarding electric utility regulation in a competitive environment.

**AGENCY:** PUC

**POSITION OF THE PARTIES:**

**PROPONENTS:** d, p, ki, n, krl, i, h, ers, r, m, ca

**OPPONENTS:** heco, ke, z

**NO POSITION:** w

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<sup>14</sup>

Re Hawaiian Electric Co., Docket No. 7257, Decision and Order No. 13839 (March 31, 1995) at 15-16.

**Barrier 5.g****Lack of adequate, high-quality renewable energy resource data.****DEFINITION:**

Lack of adequate, long-term, high quality renewable energy resource data has been listed as an impediment to renewable energy resource development. Such data are critical for predicting the performance and cost effectiveness of renewable energy systems. Although short term, high-quality data have been collected, additional long-term data is needed.

**DISCUSSION:**

Renewable energy resource data has long been recognized as important to identifying potential locations and options for renewable energy development. The lack of a data base with which to analyze renewable energy options was identified as an issue by the DBEDT-sponsored Hawaii Integrated Energy Program in 1991. Since 1991, several significant actions have been taken to improve on the availability of renewable energy resource data. A study entitled, Comprehensive Review and Evaluation of Hawaii's Renewable Energy Resource Assessments was completed. It summarized existing assessments; determined the suitability, currency, and quality of existing resource data; and determined additional resource data requirements, including possible monitoring sites, monitoring methods, and instrumentation needs.

Building on the Comprehensive Review, in 1992, the Renewable Energy Resource Assessment and Development Program was initiated by DBEDT as part of the Hawaii Energy Strategy Program. The three-phase renewable energy component, completed in July 1995, provided the best-yet compilation of renewable energy resource data. The state, with the aid of a major federal grant, has provided a valuable tool for the utilities and potential renewable energy developers. It will be made available through the State Library system and interested parties will be able to make copies from reports checked out from the DBEDT Energy Division.

## **STRATEGIES:**

### **Strategy 5.g.1**

Consider funding publication of additional copies of the DBEDT Renewable Energy Resource Assessment and Development Program final report.

#### **DISCUSSION:**

Additional copies of DBEDT's final report would be distributed to the utilities, local renewable energy developers, and other potential renewable energy developers on the mainland and in certain foreign countries. Publication of additional copies of DBEDT's final report would be contingent on resource/fund availability and the Administration's budget priorities.

**VEHICLE:** Budget

**AGENCY:** DBEDT

#### **POSITION OF THE PARTIES:**

**PROPOSERS:** heco, ke, d, r, ki, m, h, n, z

**OPPOSERS:**

**NO POSITION:** p, w, krl, i, ers, ca

**Strategy 5.g.2**

The utilities and potential developers should assume a greater monetary role in further resource assessment.

**DISCUSSION:**

Proponents maintain that cooperative resource data collection by the private sector, on a cost-sharing basis with the state, could yield further data in the public domain.

Opponents maintain that (1) the utilities have undertaken and are continuing to undertake substantial efforts to improve the body of renewable energy resource data in Hawaii (particularly through their IRP Supply-Side activities and participation in RE demonstration projects), and (2) there are limits to which the private sector will contribute to the cost of a cooperative resource data collection effort, if the collected data becomes "public domain" (which is shared with developers that did not contribute to the cost of developing the data).

**VEHICLE:** Increased private sector funding.

**AGENCY:** Utilities, RE Developers, and DBEDT

**POSITION OF THE PARTIES:**

**PROPONENTS:** d, r, ki, m, h, n, z

**OPPONENTS:**

**NO POSITION:** heco, ke, w, p, krl, i, ers, ca